

# KIC 010287145

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
010287145-01	OBS	No	242.624092	253.748372	643.9	3.562	7.2	7.8	2.39	5060	7.87	6.26

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
010287145-01	OBS	FP	0.08	1	0	0	0	ALL_TRANS_CHASES—MOD_NONUNIQ_ALT

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

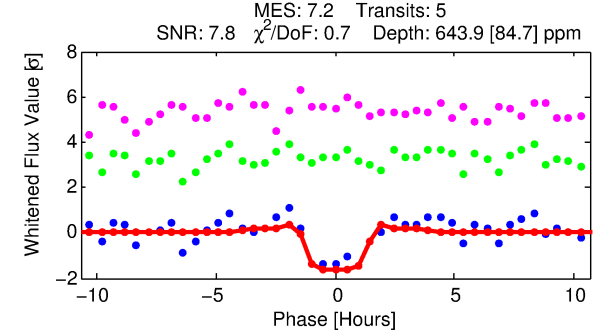
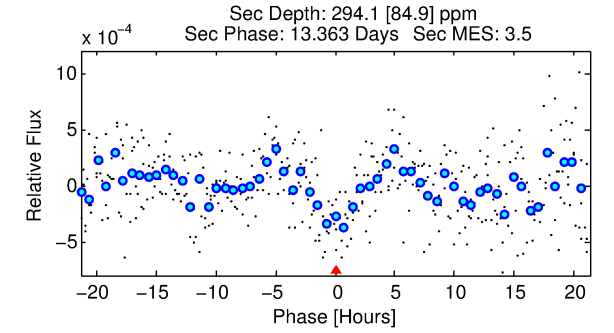
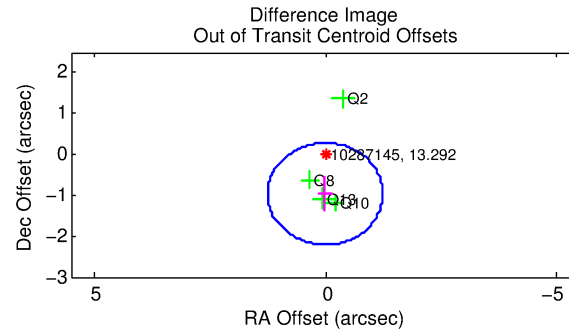
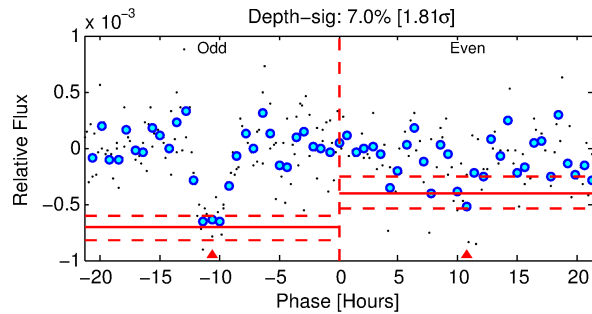
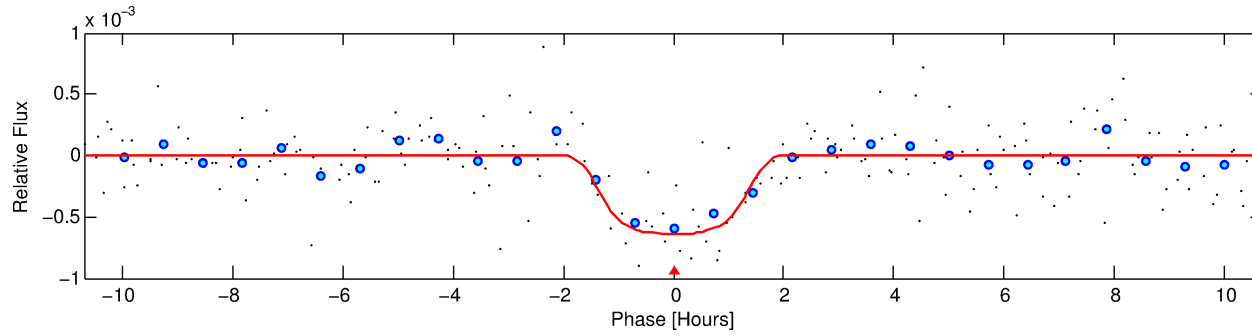
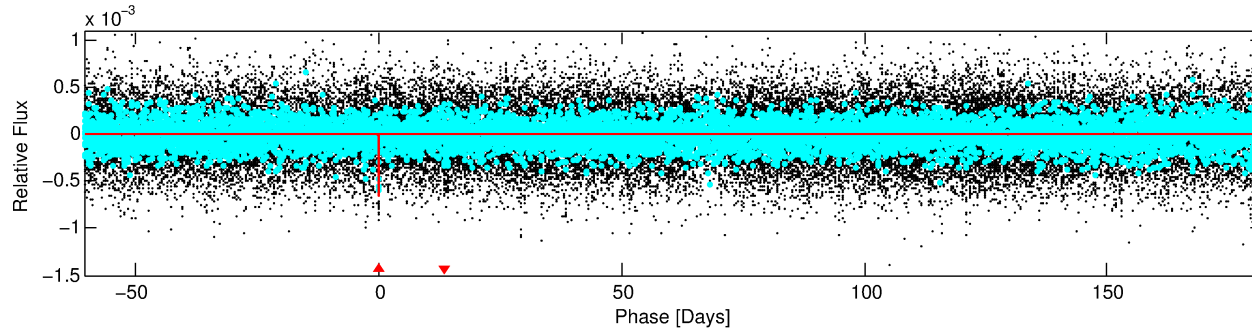
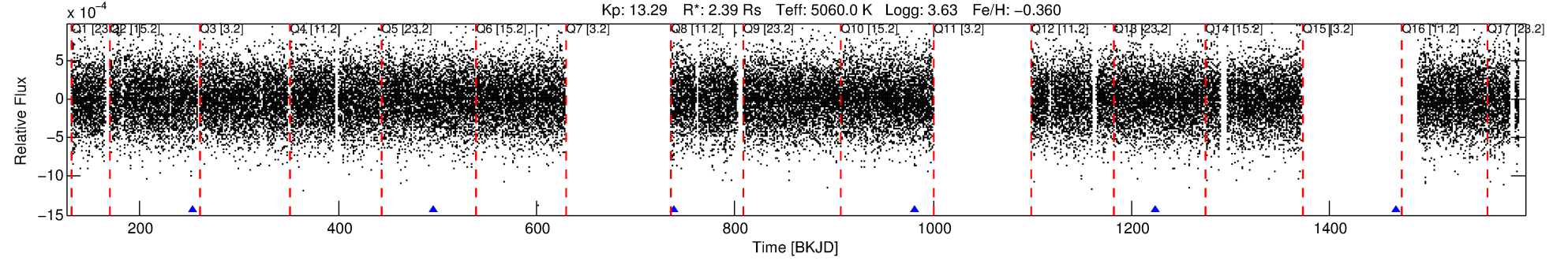
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 010287145-01

No Significant Match Found

# DV One-Page Summary

KIC: 10287145 Candidate: 1 of 1 Period: 242.624 d



## DV Fit Results:

Period = 242.62409 [0.00255] d  
Epoch = 253.7484 [0.0064] BKJD  
Rp/R\* = 0.0301 [0.0032]  
a/R\* = 211.85 [58.42]  
b = 0.95 [0.03]  
Seff = 6.26 [9.63]  
Teff = 403 [155] K  
Rp = 7.87 [5.55] Re  
a = 0.7327 [0.6345] AU  
Ag = 1403.27 [2209.64] [0.63 $\sigma$ ]  
Teffp = 3817 [357] K [8.7 $\sigma$ ]

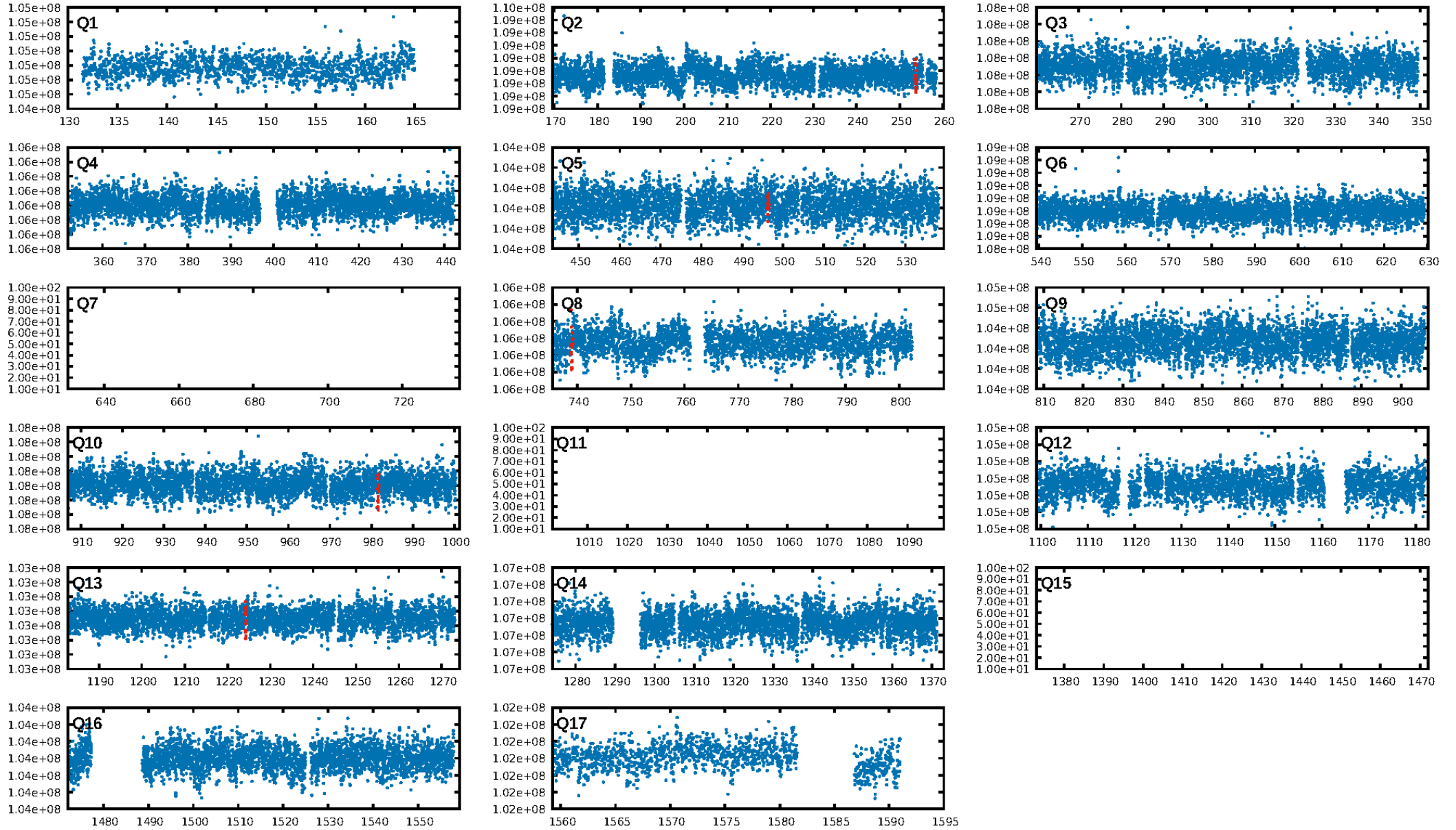
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 39.0%  
ModelChiSquareGof-sig: 100.0%  
**Bootstrap-pfa: 8.63e-11**  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: -3189  
Centroid-sig: 81.6%  
Centroid-so: 0.197 arcsec [0.35 $\sigma$ ]  
OotOffset-rm: 0.967 arcsec [2.33 $\sigma$ ]  
OotOffset-st: 2/0/1/1 [4]  
KicOffset-rm: 0.943 arcsec [1.70 $\sigma$ ]  
KicOffset-st: 2/0/1/1 [4]  
DiffImageQuality-fgm: 1.00 [4/4]  
DiffImageOverlap-fno: 1.00 [5/5]

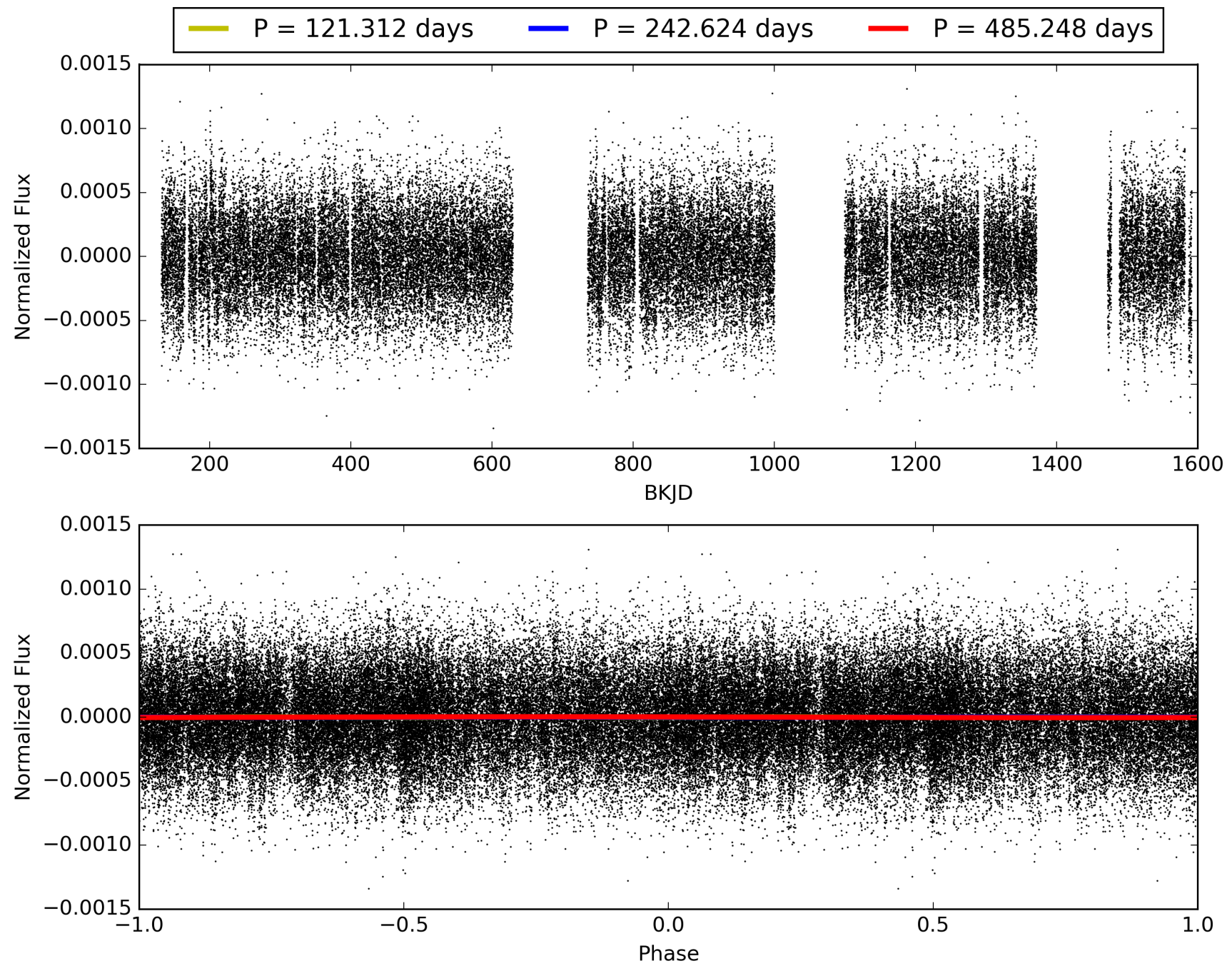
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 28-Jan-2016 20:03:03 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 010287145-01, PDC Light Curves

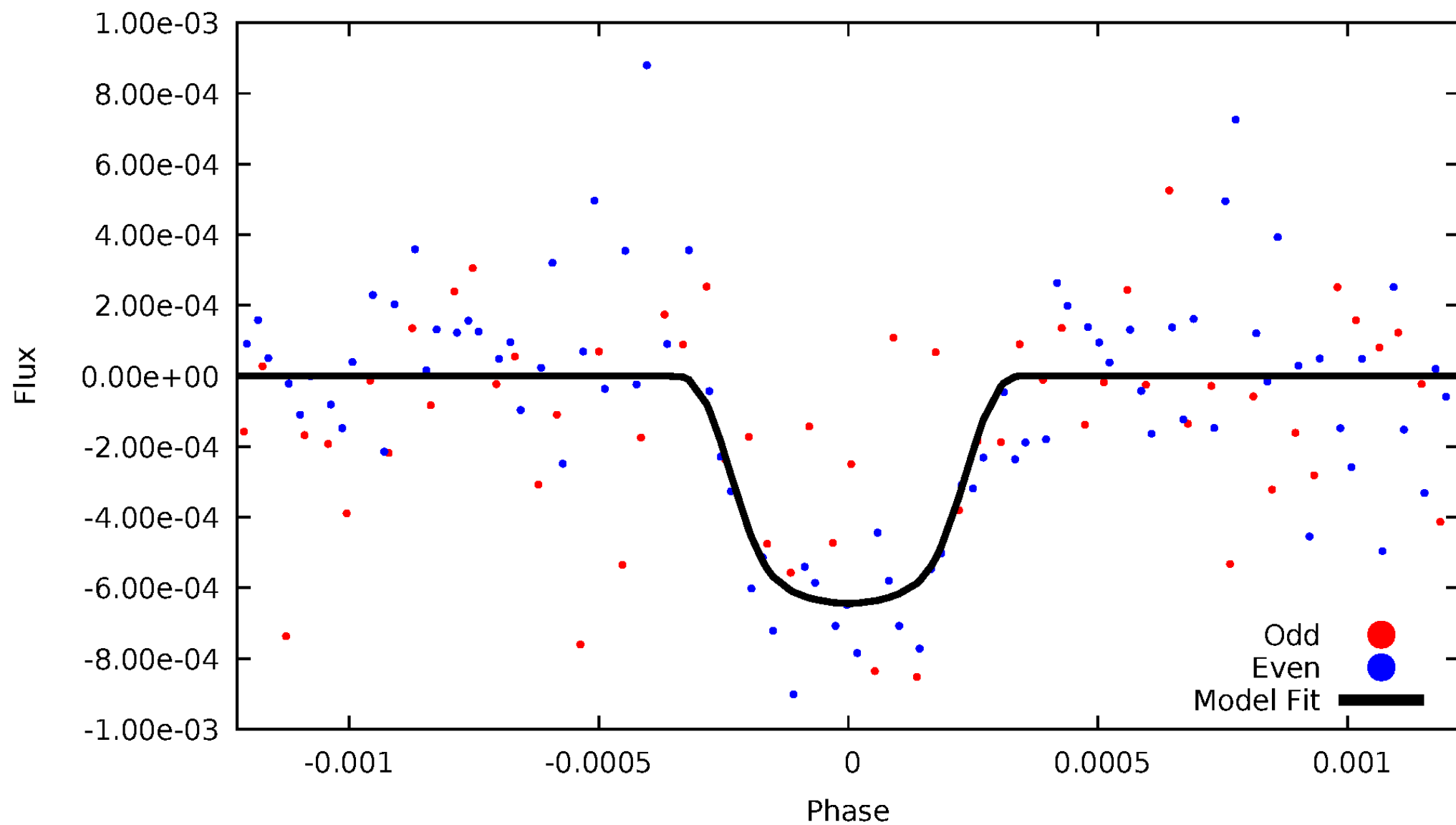


TCE 010287145-01



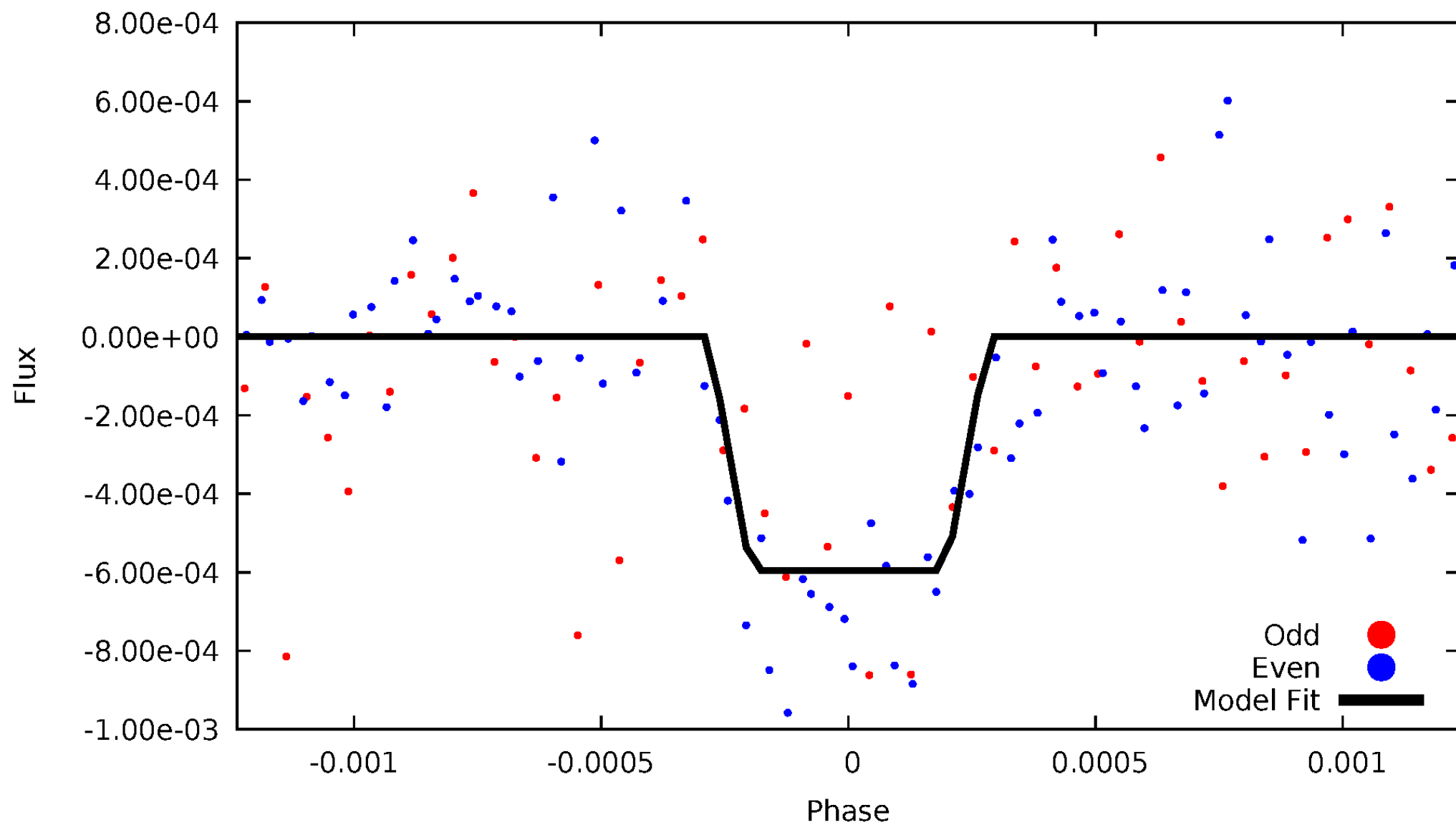
# DV Odd/Even

TCE 010287145-01



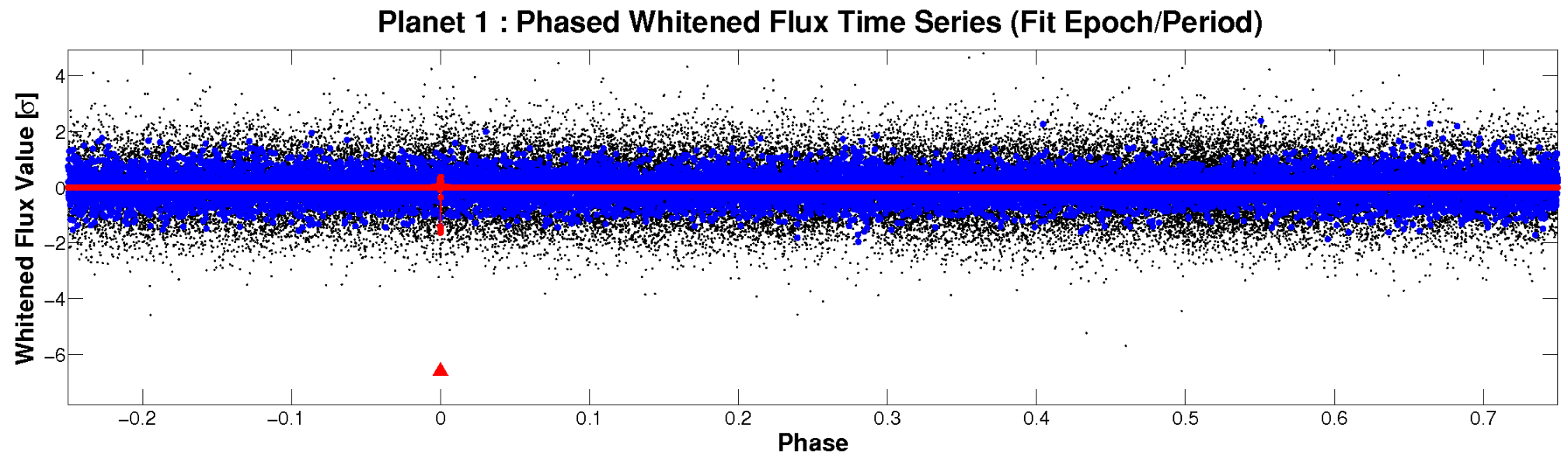
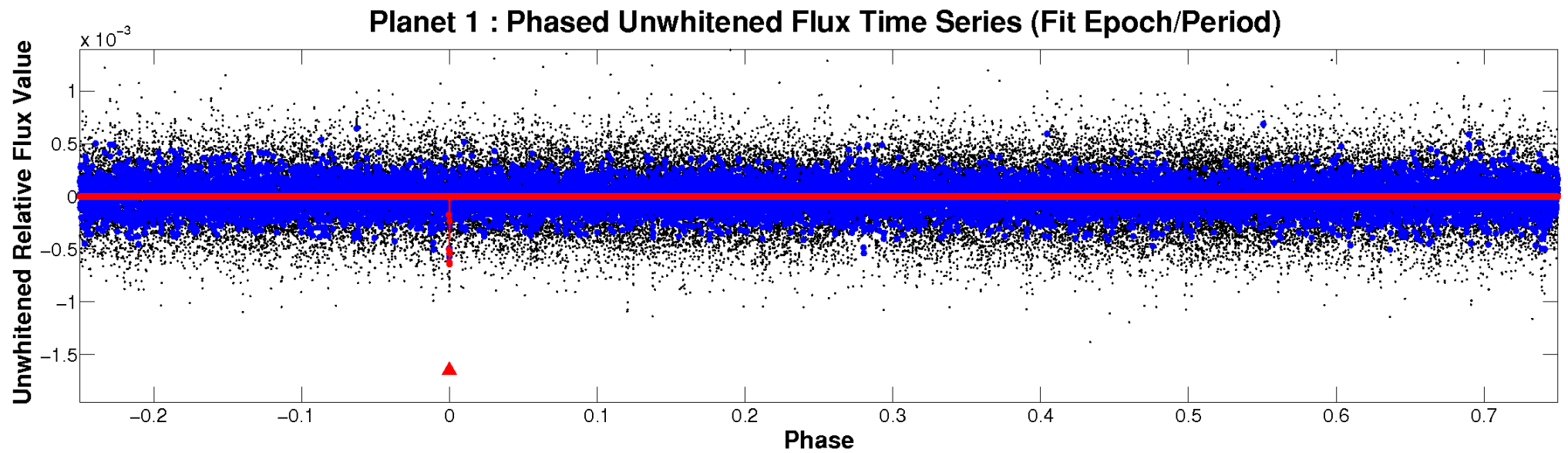
# ALT Odd/Even

TCE 010287145-01



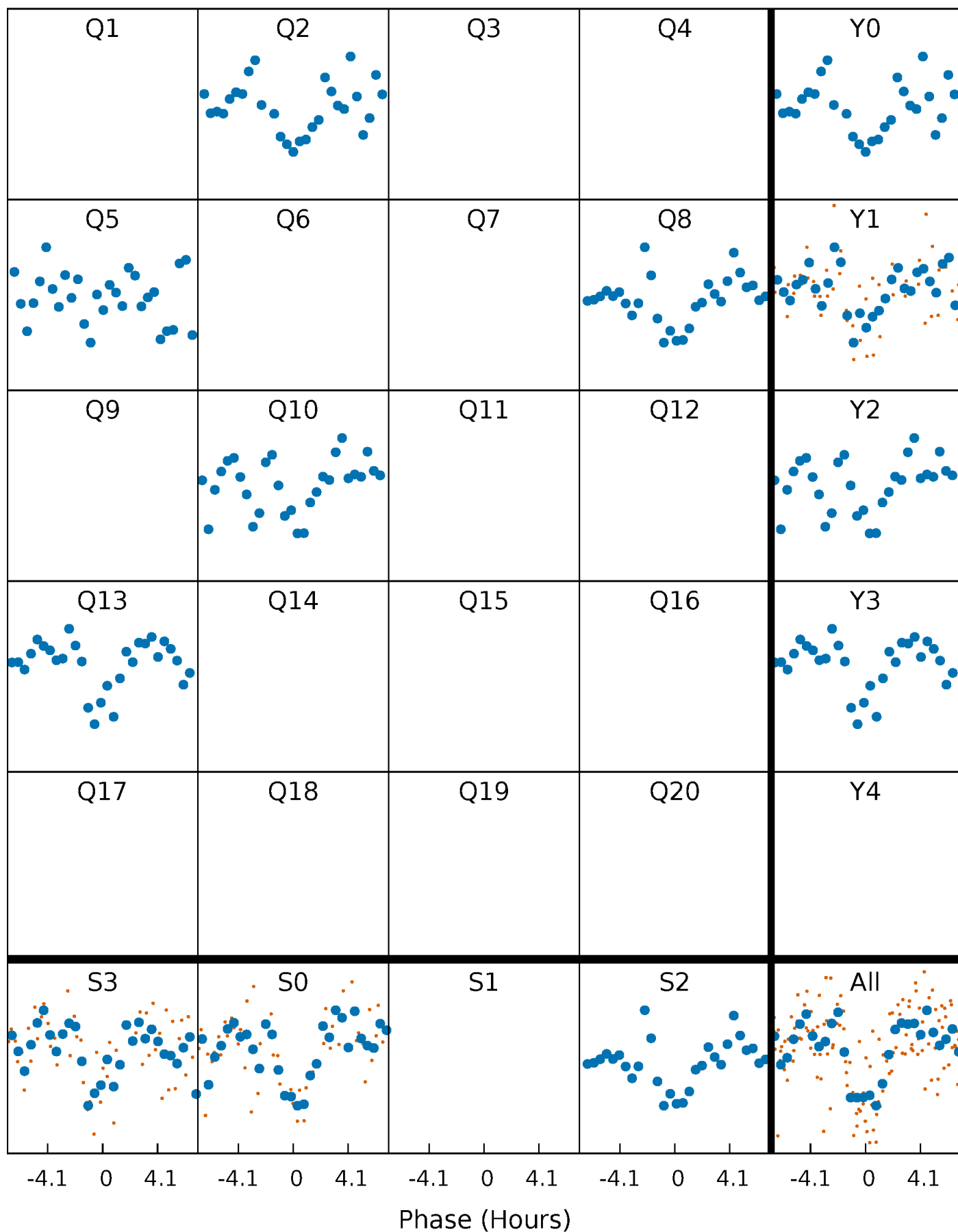


# Non-Whitened Vs. Whitened Light Curve



# PDC Quarter-Phased Transit Curves

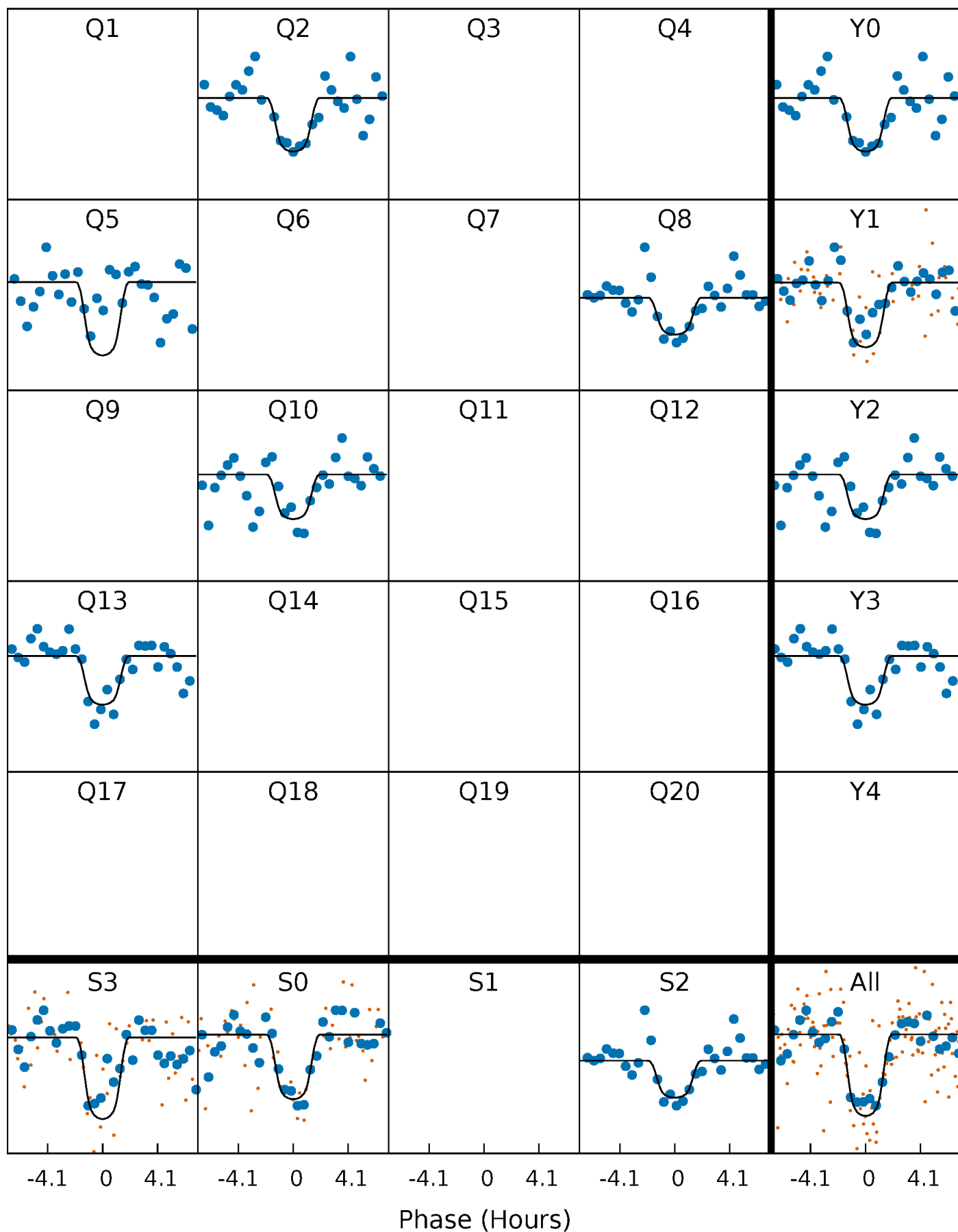
TCE 010287145-01 P=242.624092 Days  $T_0=253.748372$  (BKJD)





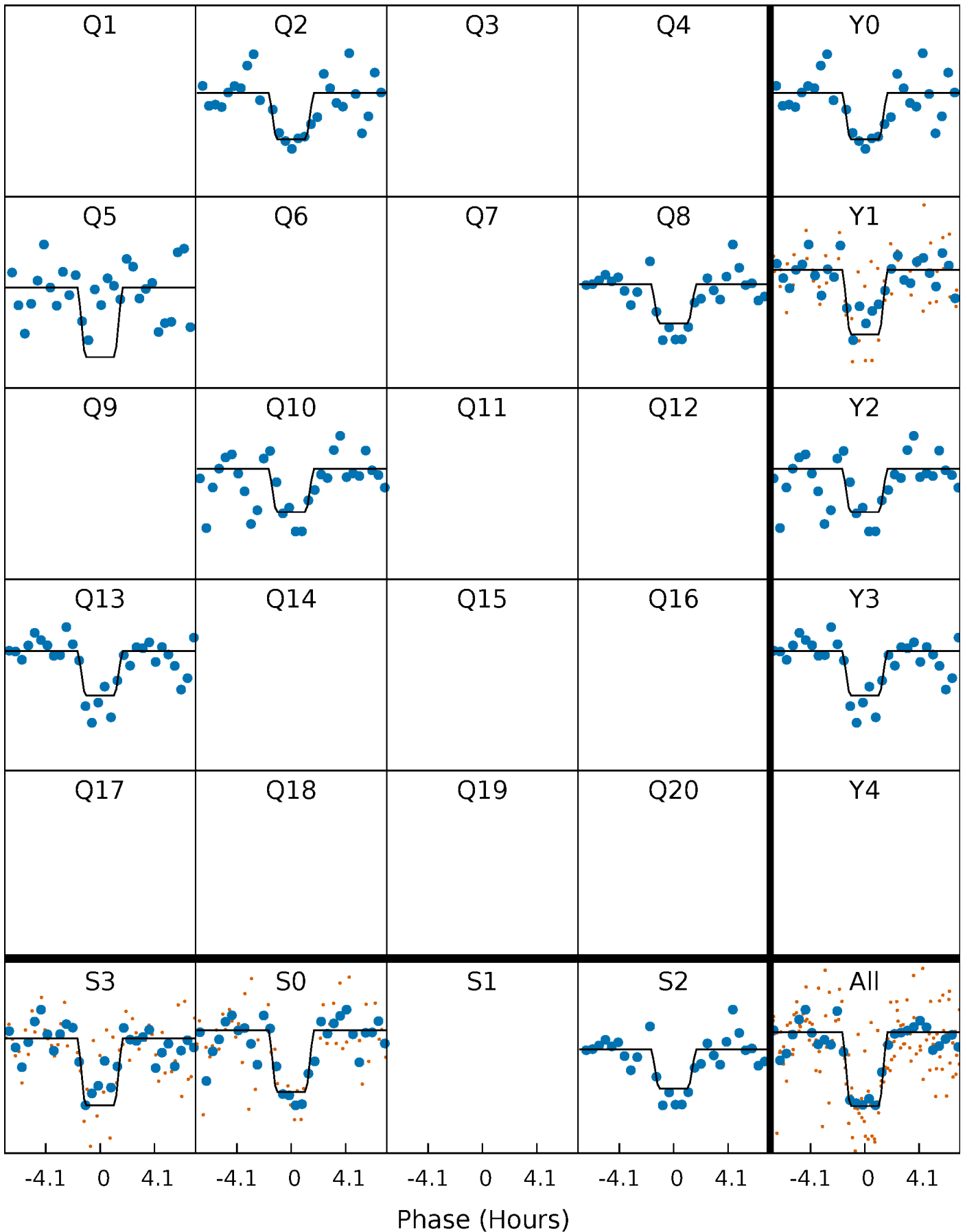
# DV Quarter-Phased Transit Curves

TCE 010287145-01 P=242.624092 Days  $T_0=253.748372$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

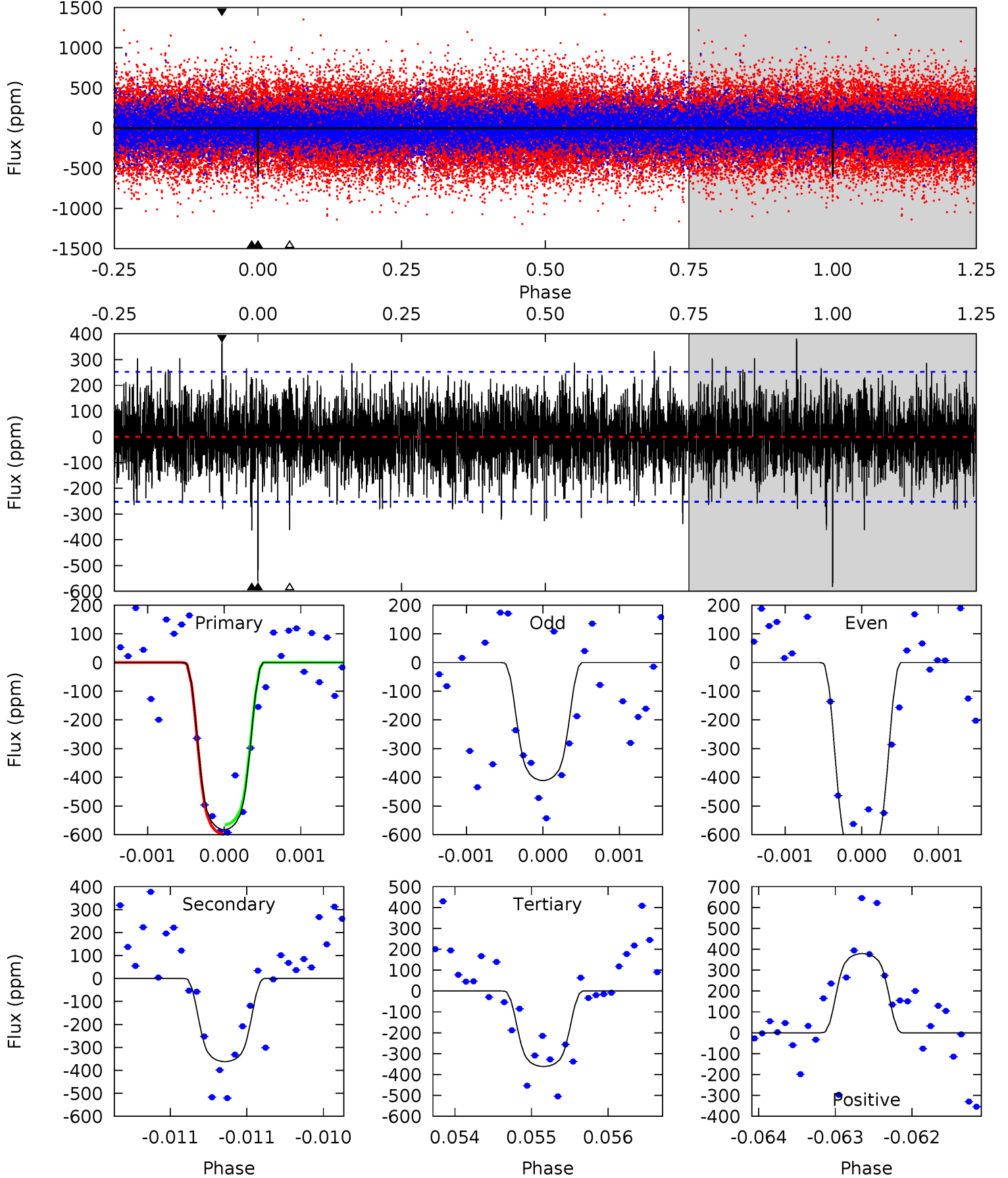
TCE 010287145-01 P=242.624586 Days  $T_0=253.749483$  (BKJD)



# DV Model-Shift Uniqueness Test

010287145-01, P = 242.624092 Days, E = 11.124280 Days

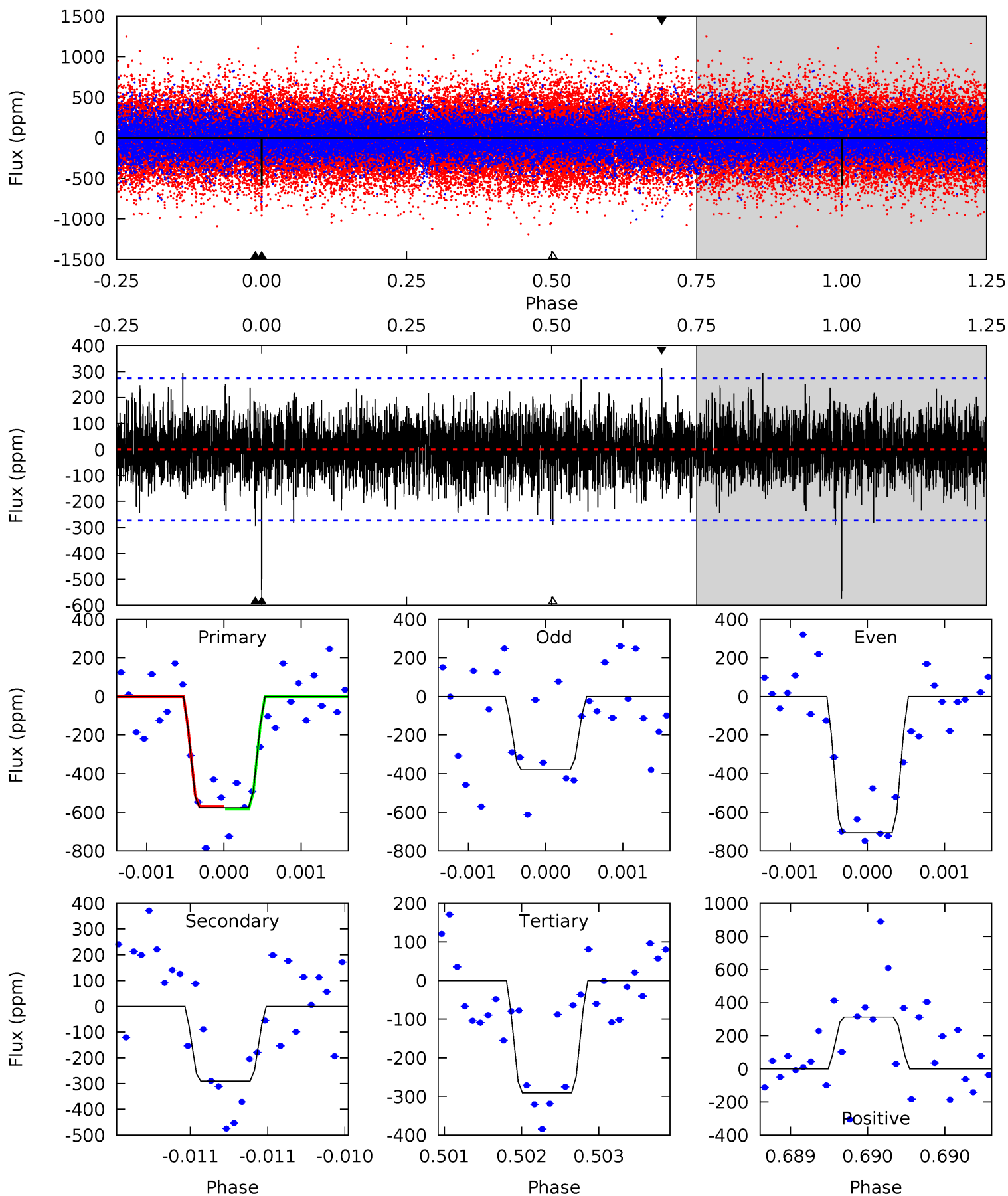
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
12.8	7.93	7.92	8.31	5.52	3.40	2.10	4.83	4.45	0.01	-0.38	3.05	0.90	0.39	0.36



# Alt Model-Shift Uniqueness Test

010287145-01, P = 242.624586 Days, E = 11.124897 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.7	5.91	5.91	6.35	5.55	3.45	1.62	5.77	5.33	0.00	-0.44	3.26	0.92	0.35	0.14



### Stellar Parameters For KIC 010287145

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R$ ( $R_{\odot}$ )	$M(M_{\odot})$	$p_{\star}$ ( $\text{g}\cdot\text{cm}^{-3}$ )
	$5060^{+140}_{-115}$	$3.630^{+0.952}_{-0.317}$	$-0.360^{+0.300}_{-0.200}$	$2.393^{+1.364}_{-1.668}$	$0.891^{+0.266}_{-0.177}$	$0.092^{+2.591}_{-0.059}$
	+3%/-2%	+26%/-9%	+83%/-56%	+57%/-70%	+30%/-20%	+2829%/-64%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 010287145-01 / KOI

Detrend	Depth (ppm)	$R_p$ ( $R_{\oplus}$ )	$T_{max}$ (K)	$T_{obs}$ (K)	$A_{obs}$
DV	$-362 \pm 46$	$7.61^{+2.85}_{-3.07}$	$554^{+87}_{-121}$	$4210^{+240}_{-209}$	$1910^{+3328}_{-933}$
Alt.	$-291 \pm 49$	$6.14^{+2.41}_{-2.28}$	$551^{+89}_{-104}$	$4363^{+299}_{-256}$	$2337^{+3331}_{-1168}$

$T_{max}$  = Theoretical Maximum Planetary Temperature  
 $T_{obs}$  = Observed Planetary Temperature (Assuming A=0.3)  
 $A_{obs}$  = Observed Albedo (Assuming T=0)

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

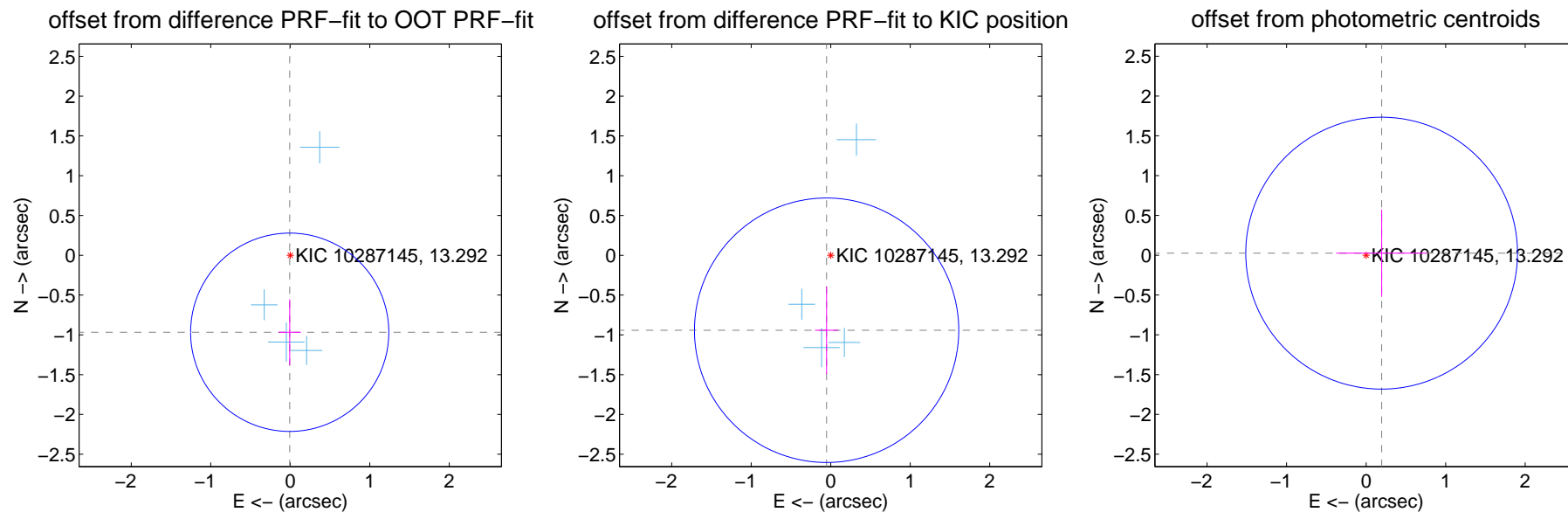
## DV Centroid Data

Supplemental centroid analysis for 010287145-01. Kepler magnitude: 13.29. Transit SNR 7.80

There are 4 quarters with good PRF difference image offsets

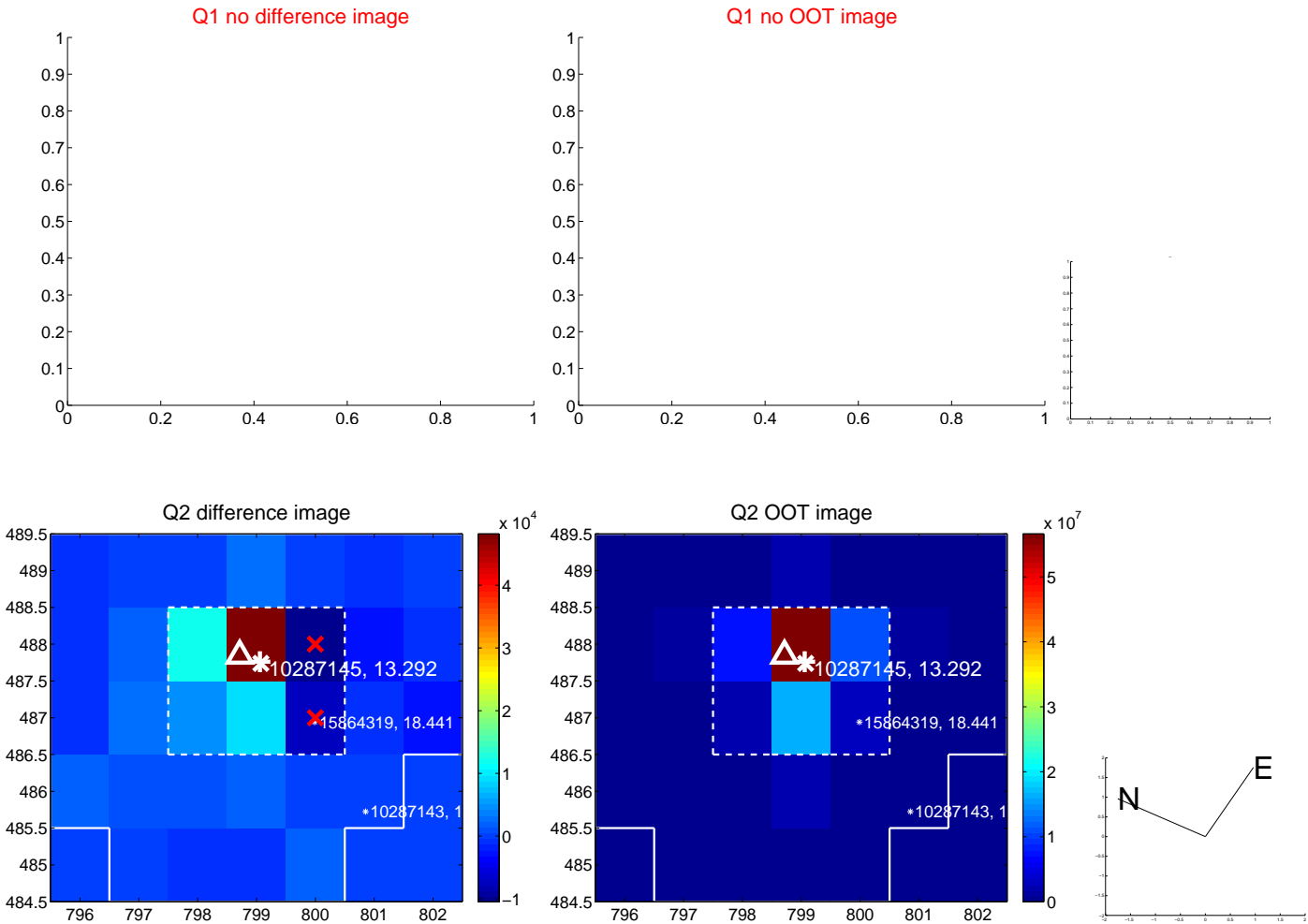
The direct PRF centroid is offset from the target star catalog position by about 0.10 arcsec

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$0.967 \pm 0.415$	2.33	$0.007 \pm 0.141$	$-0.967 \pm 0.415$
PRF-fit source offset from KIC position	$0.943 \pm 0.554$	1.70	$0.052 \pm 0.145$	$-0.942 \pm 0.551$
photometric centroid source offset	$0.20 \pm 0.57$	0.35	$-0.19 \pm 0.57$	$0.03 \pm 0.55$



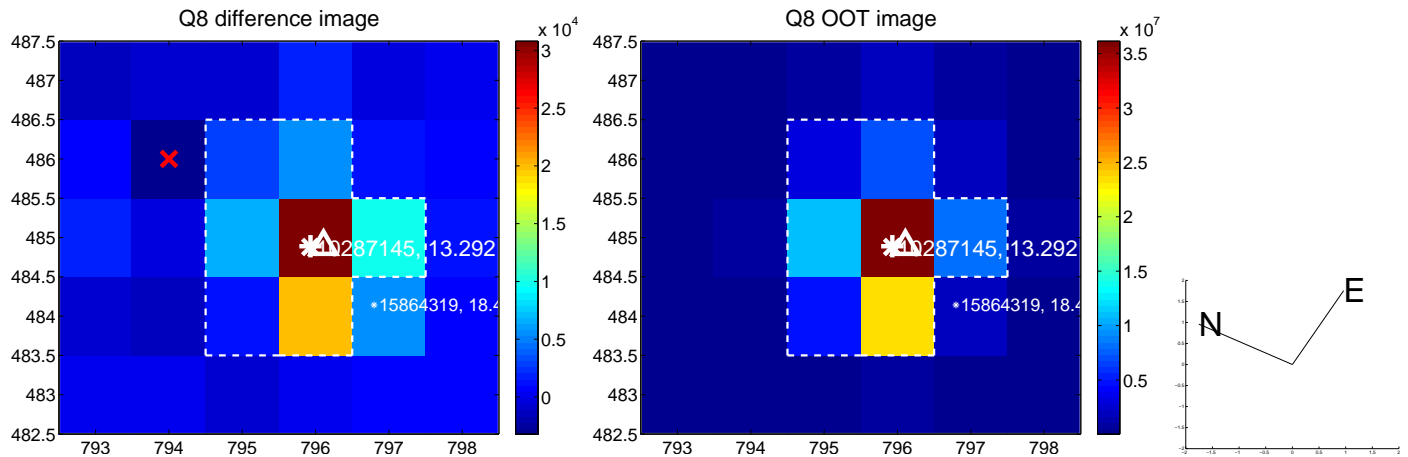
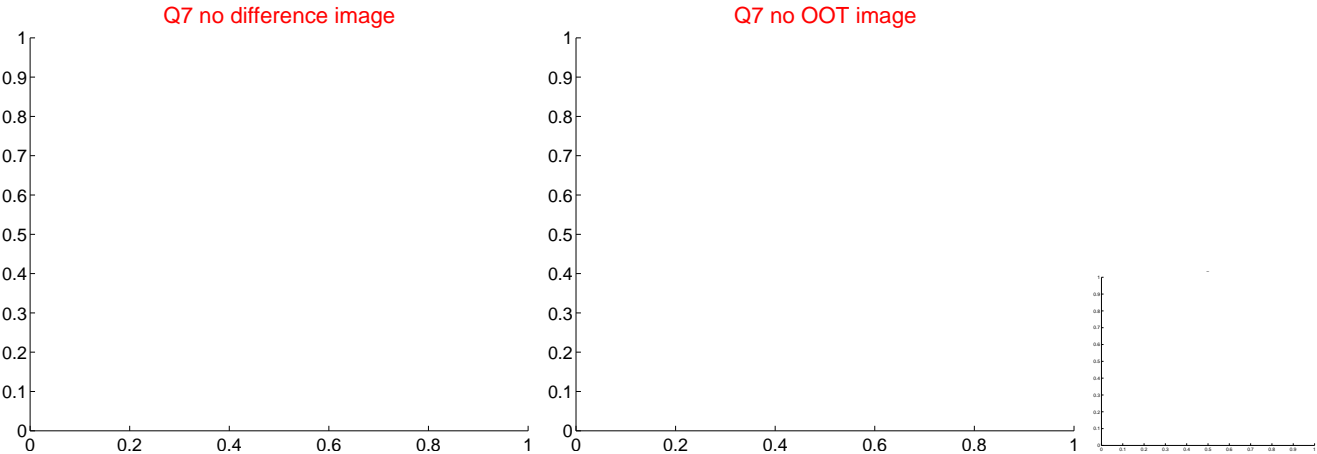
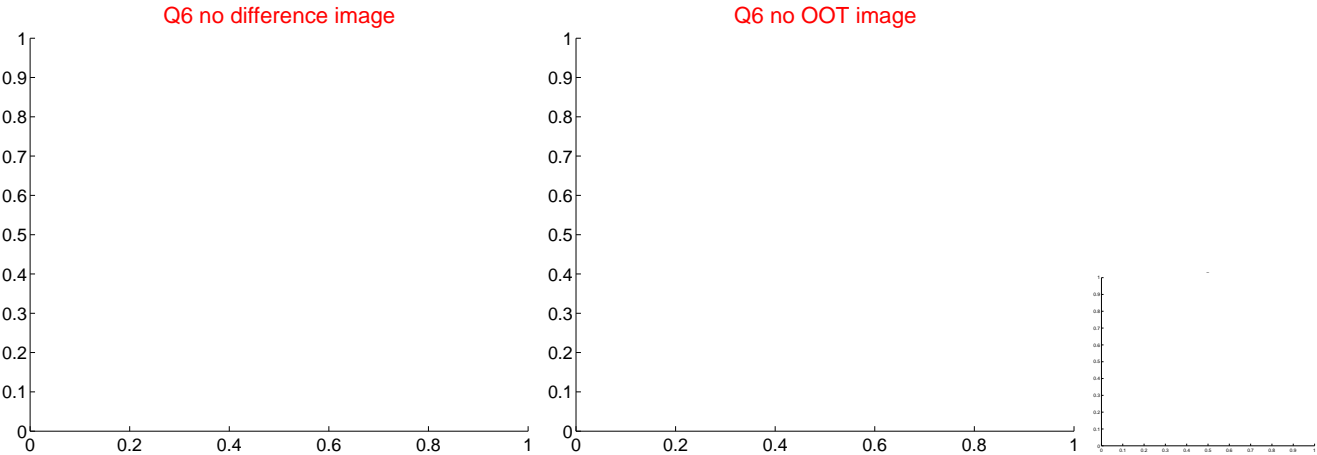
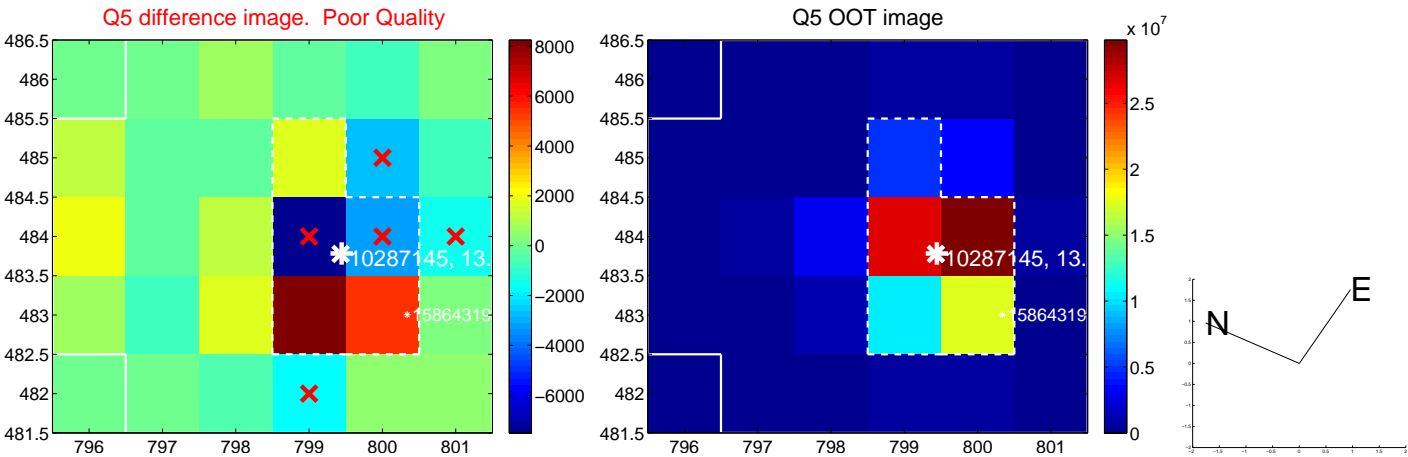
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses:** good quarterly centroid offsets; **Vermillion crosses:** bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



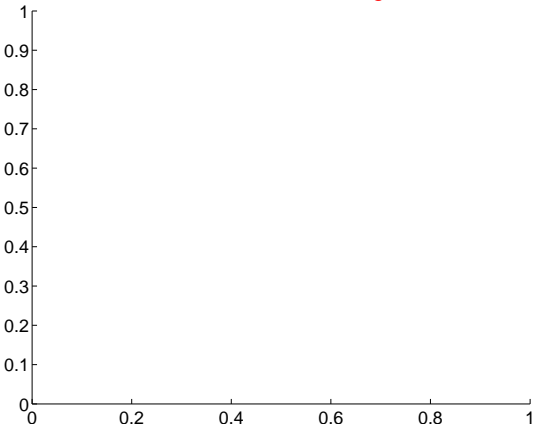


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

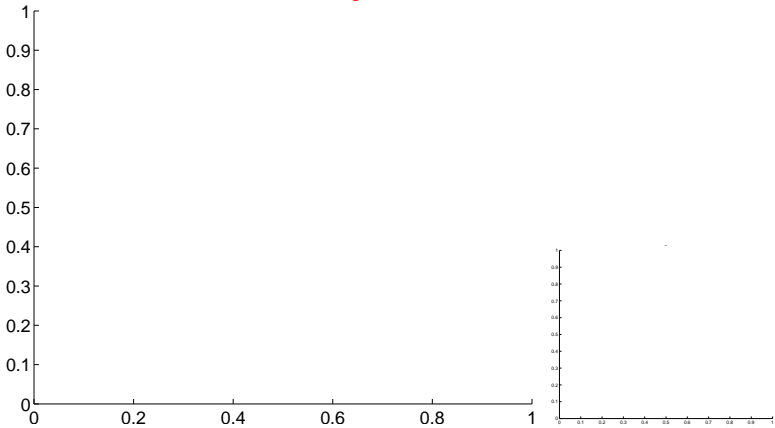


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

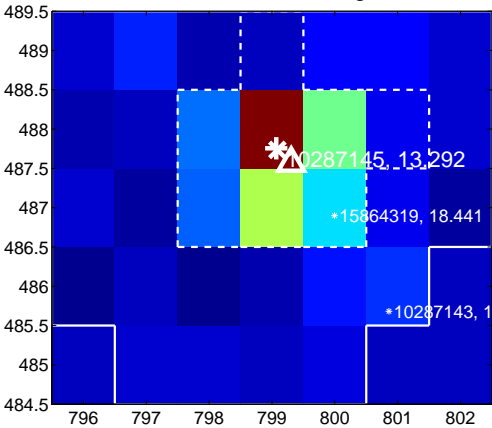
Q9 no difference image



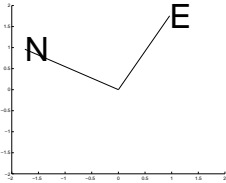
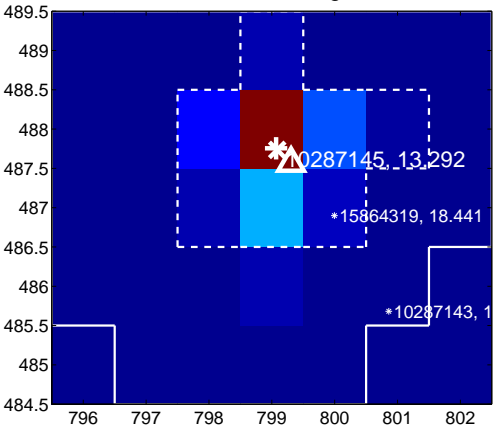
Q9 no OOT image



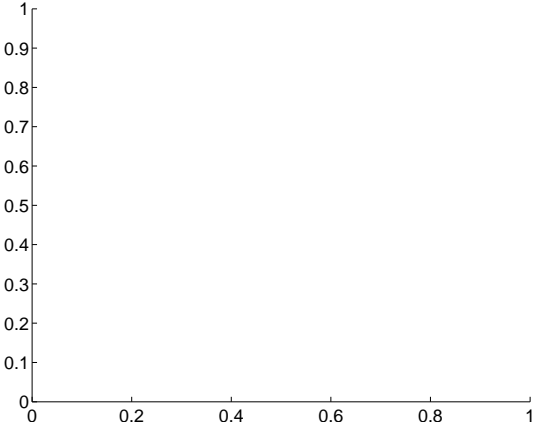
Q10 difference image



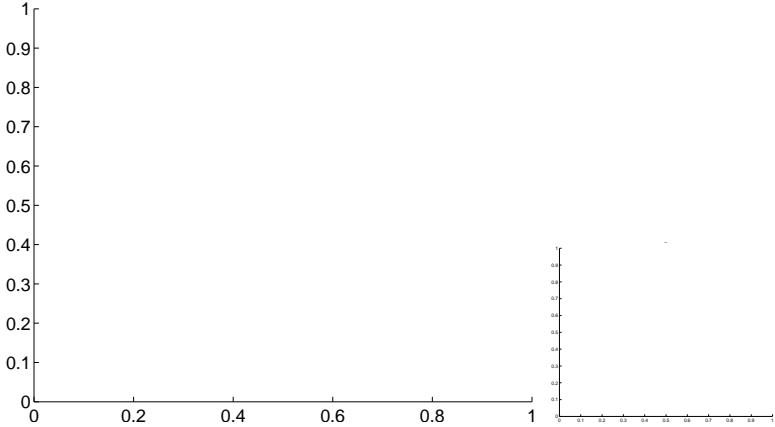
Q10 OOT image



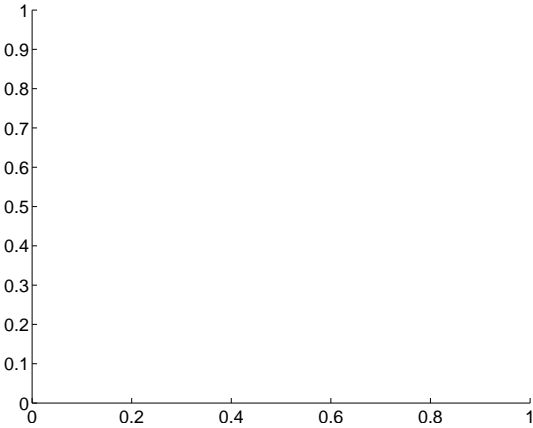
Q11 no difference image



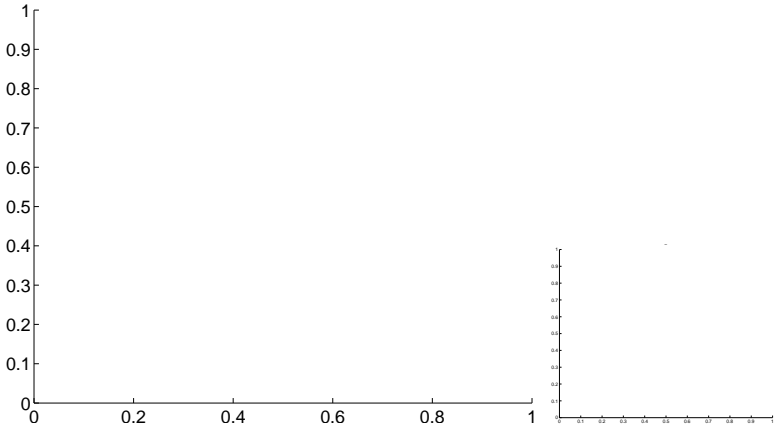
Q11 no OOT image



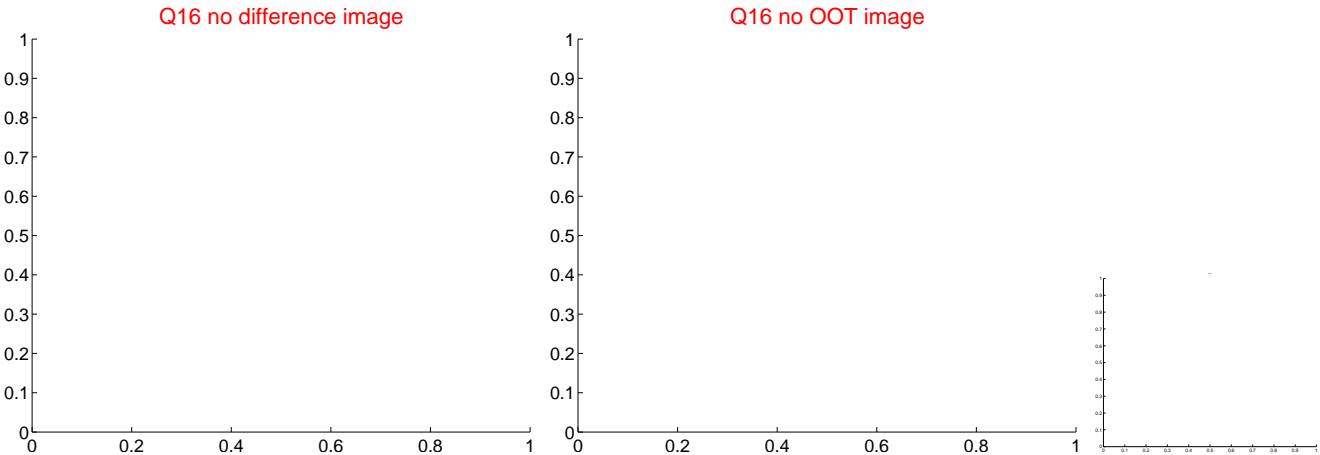
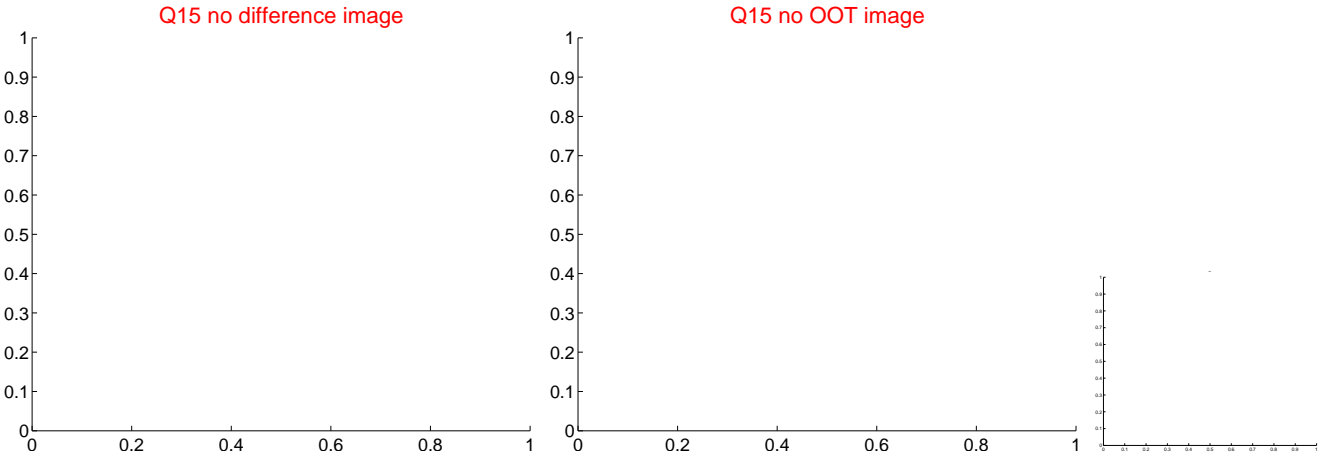
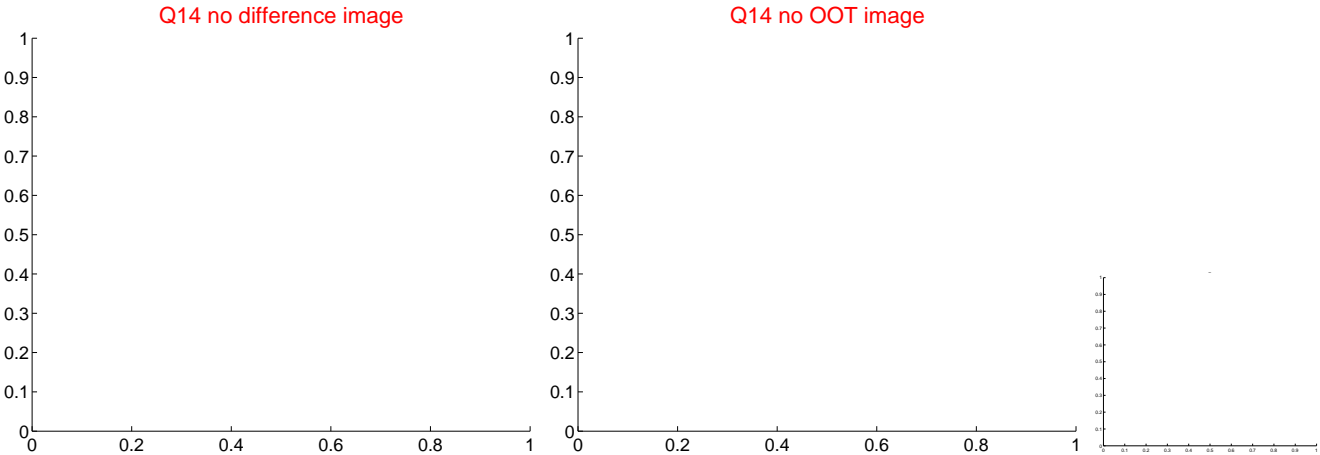
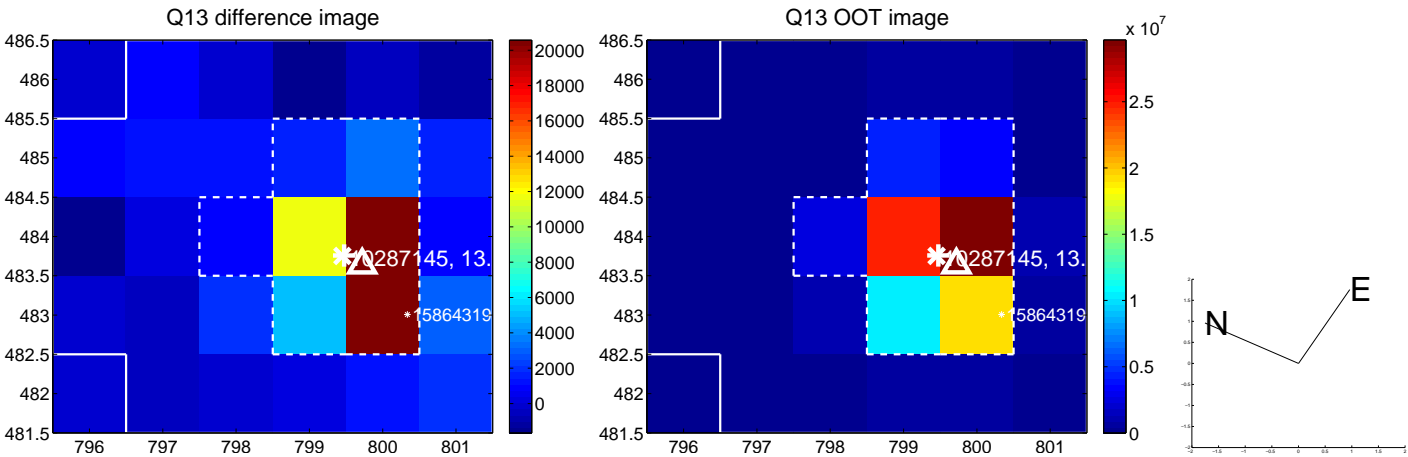
Q12 no difference image



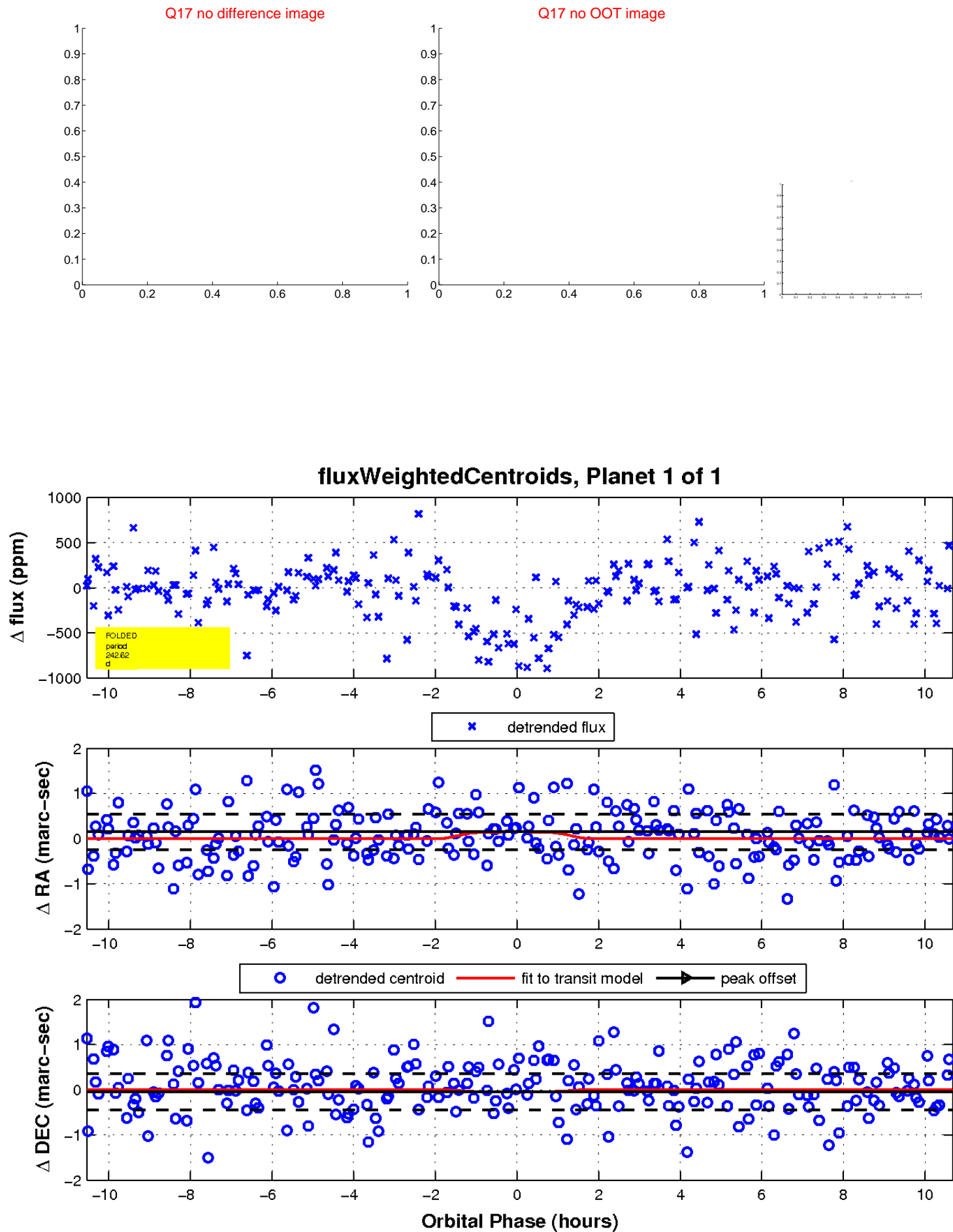
Q12 no OOT image



white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.



white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination

